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March 21, 1994

BY HAND DELIVERY

Mr. William F. Caton
Acting Secretary
Federal Communications Commission
Room 222
1919 M Street, N.W.
Washington, D.C. 20554

Re: CC Docket 92-297
RM-7872; ~~RM-7722~~

Dear Mr. Caton:

On behalf of Harris Corporation-Farinon Division, transmitted herewith are an original and four (4) copies of its Comments in the above-referenced matter.

Should any questions arise concerning this matter, please communicate with this office.

Very truly yours,

FLETCHER, HEALD & HILDRETH

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LRR:cej
Enclosures

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BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Rulemaking to Amend Part 1 and Part 21 of the Commission's Rules to Redesignate the 27.5 - 29.5 GHz Frequency Band and to Establish rules and Policies for Local Multipoint Distribution Service	)	CC Docket 92-297
	)	RM-7872; RM-7722

To the Commission:

COMMENTS BY
HARRIS CORPORATION-FARINON DIVISION

The Harris Corporation-Farinon Division ("Harris") submits the comments below in response to the Commission's Public Notice in the above cited proceeding released on February 11, 1994. In the comments below, Harris urges that (1) the interests of the terrestrial-fixed services be included in the terms of reference for the proposed Advisory Committee, (2) the Advisory Committee be permitted to consider additional options, and (3) the 27.5-29.5 GHz band remain available for the terrestrial-fixed services (on a shared basis with the fixed-satellite service).

I. PRELIMINARY STATEMENT

Harris is a Florida corporation with its headquarters located in Melbourne, Florida. Through its Farinon Division, located in San Carlos, California, Harris designs, develops and manufactures microwave equipment for terrestrial fixed microwave systems. Harris currently offers both analog and digital product

lines in frequency bands ranging from 900 MHz to 23 GHz and is undertaking R&D for future new product lines for the 27.5-29.5 GHz band and higher. As a leading manufacturer of microwave equipment, Harris is interested in the outcome of the above cited proceeding.

The Farinon Division addresses the needs of the point-to-point microwave communications user groups both domestically and internationally. Harris participation in FCC Dockets and preparations for CCIR Study Groups has been prominent over the past years where terrestrial fixed microwave communications have been concerned. The Division is a major supplier to the private microwave market that includes state and local governments, electric, gas and water utilities, railroads, and cellular telephone industry.

II. FIBER OPTIC CABLE AND MIGRATION OF MICROWAVE COMMUNICATIONS TO HIGHER BANDS

In the view of Harris, fiber optic alternatives to fixed microwave service show advantages when the circuit requirements are large, and the multiple fiber cables with each pair of fibers providing thousands of voice circuits shows economic advantages over parallel channels of microwave. As a result, some of the larger transcontinental microwave networks have stopped growing, or are seeing some consolidation in the network. The advantages for microwave are moving towards the light to medium circuit cross sections typical of the private microwave cellular mobile (or other wireless technology) applications where fiber or satellite service is not optimum and to higher capacity urban

applications where right-of-way (duct space) are difficult to obtain. Microwave can be implemented rapidly in these applications, particularly in remote regions where no fiber exists, and in metropolitan locations where the cost or availability of the duct space, or satellite receiving location on a building top does not provide a practical solution. As discussed in Section V below, a new requirement for very broad band fixed microwave has developed for which the 27.5-29.5 GHz band would be most suitable.

Harris was instrumental in narrow banding of the 17.7-19.7 GHz band, and having that spectrum shared between different classes of users. It feels strongly that the 27.5-29.5 GHz band should follow in that example and not be assigned exclusively for another video distribution system as is being proposed by the Commission.[1] CCIR has already developed several frequency plans for the 27.5-29.5 GHz band[2] and CEPT is now planning low and medium capacity links in the same allocation.[3] To make the United States use of this band unique, would put U.S. manufacturers at a competitive disadvantage. As for the 38 GHz bands, the U.S. should strive to harmonize its 28 GHz allocation

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[1]Notice of Proposed Rulemaking, Order, Tentative Decision and Order on Reconsideration, CC Docket 92-297 released January 8, 1993.

[2]See CCIR 9B/TEMP/43 pertaining to Recommendation 748, September 93.

[3]"Detailed Spectrum Investigation; First Phase - 3400 MHz to 105 GHz", presented to the European Radiocommunications Committee and CEPT administrations, March 1993.

to worldwide recommendations. These two bands have been expected to link the bulk of the microcellular base stations envisaged for the growing PCS and wireless communications market. Again, the cross sections of traffic to each microcellular base station is expected to be smaller than optimum for fiber optics and in some cases, right-of-way problems preclude use of fiber optics and call for the use of High Capacity/High frequency radios. (See Section V below for further discussion)

III. EVEN THOUGH CONSIDERED PREMATURE, ADVISORY COMMITTEE CAN BE HELPFUL

As seen by Harris, the issues surrounding future use of the 27.5-29.5 GHz band need to be more thoroughly considered prior to any final rulemaking action. Establishment of the Advisory Committee is considered by Harris to be premature but Harris also recognizes there could be a useful outcome. The Commission's apparent optimism that LMDS can share spectrum with satellite earth stations may prove to be unrealistic. If the studies by the Advisory Committee prove this, other spectrum allocation actions would be become necessary.

The 27.5-29.5 GHz band is allocated worldwide for terrestrial fixed and fixed-satellite (earth-to-space) services on a co-primary basis. This allocation was made with foresight as these two services can share the same spectrum. Sweeping this worldwide allocation aside to accommodate an LMDS service in the U.S. raises questions of whether or not such an allocation change is prudent. The outcome of the Advisory

Committee deliberations could prove the current ITU and U.S. National allocation is wise.

IV. HARRIS IS NOT OPPOSED TO LMDS BUT IT SHOULD BE ACCOMMODATED SO AS NOT TO IMPEDE OTHER IMPORTANT NEW TECHNOLOGIES

New technology and new requirements for that technology are one of the wonders of the entrepreneurial system of our country. LMDS is clearly an example of a new technology. However, based on spectrum allocations of the 27.5-29.5 GHz band that have been in effect for several years, satellite service interests have also developed new technologies to meet new and developing requirements. The record of the proceeding in Docket 92-297 makes reference to important new fixed satellite services to support new mobile technologies. The significant investment by NASA through its ACTS program needs to be taken into account. Those activities lend themselves to co-primary sharing of the 27.5-29.5 GHz as has been planned both by the ITU and U.S. national allocations. LMDS, as important and promising as it may be, should not block the entire 27.5-29.5 GHz band.

V. THE 27.5-29.5 GHz BAND SHOULD NOT BE DIVORCED FROM PLANNING FOR USE OF THE 38 GHz BAND

As deliberations in Docket 92-297 were proceeding within the FCC the subjects of a National Information Infrastructure (NII) and National Information Highway have moved to the forefront. Clearly, growth of fiber optic technology will be a major factor as the NII develops but high capacity terrestrial microwave systems will also play an important role. Harris envisages very

broad band terrestrial microwave as a new technology that would have the capability of extending circuits to destinations without access to fiber systems. The 27.5-29.5 GHz band is the logical frequency band for the provision of such broad band terrestrial microwave systems. These systems lend themselves to sharing with satellite Earth-to-space links and can be implemented using allocations already in effect in the U.S. and worldwide.

Meanwhile, the 38 GHz band is currently well on the way to being used for many types of "short-hop" terrestrial fixed systems. In particular, Harris sees this band as essential for systems serving cellular and PCS communications. Harris expects that such uses of this band will grow rapidly in the near future.

In sum, Harris urges that the spectrum requirements for terrestrial fixed microwave relay systems just described be considered as a "package" that would retain the existing domestic allocations for fixed service communications in both the 27.5-29.5 and 38 GHz bands.

VI. THE PROPOSED SCOPE OF THE ISSUES TO BE CONSIDERED IN THE NEGOTIATED RULEMAKING SHOULD BE EXPANDED

Section II of the Public Notice identifies shared use of the 27.5-29.5 GHz band as a primary issue to be addressed in the proposed Negotiated Rulemaking and then asks that the Advisory Committee to "provide an analysis of how benefits of its proposed solution outweigh other options for accommodating those services." As seen by Harris, the Advisory Committee will be seriously handicapped in identifying workable options because the

use of allocations outside the 27.5-29.5 GHz band are apparently not to be included. For example, on page 4 of the Public Notice it is stated that "Other issues may be included by the parties. All recommendations or proposed rules must comply with International Telecommunications Union treaty obligations." If this means the other issues are limited to those that can be resolved within the 27.5-29.5 GHz band, not much latitude is being provided for debate. On the other hand, "other issues" could (and should) allow consideration of retaining all or part of the current worldwide and U.S. National allocations of the 27.5-29.5 GHz band for co-primary use by the fixed, fixed-satellite (Earth-to-space) and mobile services. In short, accommodation of the terrestrial fixed microwave service should be included in the "other issues." The possibility of accommodating LMDS in other suitable bands should not be excluded, nor should the foreseen digitalization of video distribution be ignored.

Continuing this line of reasoning, it would seem very appropriate for the Advisory Committee to consider a recommendation that the 40.5-42.5 GHz band be substituted for use by LMDS. This band is allocated worldwide by the ITU for terrestrial broadcasting on a co-primary basis with Broadcasting-satellites with terrestrial fixed and mobile on a secondary basis. Arguments that 40.5-42.5 GHz band frequencies are too high in the spectrum for an LMDS service need to be reconsidered. For example, the 38 GHz band not long ago was considered too high

to be really useful for terrestrial fixed services but it is now being implemented throughout the world because it is ideal for "short-hop" systems. Indeed, a very rapidly growing market for 38 GHz band terrestrial fixed microwave has appeared not only in the U.S. but in many foreign countries. The 38 GHz systems work extremely well. It follows that the 40.5-42.5 GHz band could also work well for LMDS.

In this connection, the Advisory Committee should be asked to take into consideration the extensive studies undertaken in the United Kingdom that have demonstrated the feasibility of the 40.5-42.5 GHz band for Multipoint Video Distribution Systems (MVDS) -- the European equivalent to LMDS. Based on these studies, the British Ministry of Trade and Industry has promulgated performance specifications[4],[5] for use of the 40.5-42.5 GHz band for MVDS. Many of the 37 CEPT countries have already designated the 40.5-42.5 GHz band for MVDS.[6] This then raises the question of why the U.S. shouldn't take advantage of (a) the British initiative, (b) the actions of CEPT and its

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[4]See U.K. Radiocommunications Agency MVDS Performance Specification (MPT 1550), September 1993 (31 pages in length).

[5]See also U.K. Independent Television Commission "General Notes" for the guidance of franchise applicants, November 1993 (23 pages and 3 Annexs).

[6]See CEPT Recommendation T/R 52-01-E designating the 40.5-42.5 GHz band as the harmonized frequency band for MVDS in Europe. As of December 1993, this Recommendation has been adopted by Austria, Finland, Ireland, Netherlands, Portugal, Sweden, Turkey, and the U.K. Eight other European countries have signified their intention to incorporate this recommendation into their national allocation tables.

member countries, and (c) the expected world markets for export of U.S. LMDS technology.

The Advisory Committee should have the option of debating on whether or not 2000 MHz of valuable spectrum (27.5-29.5 GHz) should be allocated for only 49 channels of video service when USSB, Hughes Direct TV, and other high powered Ku band TV DBS systems will be in operation shortly? Assuming competition to cable TV was a principle concern to the Commission when this proceeding started, such is no longer the case now. Finally, Harris notes that present digital technology allows a broadcast quality TV channel to be transmitted in only 6 Mb/s. Considering that the future TV networks will be all digital, Harris questions the need of a full 2000 MHz allocation for LMDS.

VII. CONCLUSIONS

Noting the foregoing discussion, the following is concluded:

(a) The concept of using an Advisory Committee to obtain public sector inputs has merit but (1) its terms of reference should be broadened beyond those setforth in the Commission's Public Notice so as to give it more options to consider and (2) its membership should be expanded to include representation of the terrestrial microwave relay industry (e.g., TIA) since spectrum allocated domestically and internationally is affected.

(b) The Advisory Committee should have the latitude to recommend solutions outside the 27.5-29.5 GHz band as sharing within that band by satellite and video distribution systems could prove to be unrealistic. Retaining the 27.5-29.5 GHz band or a substantial part of it for terrestrial fixed would facilitate the implementation of broadband microwave relay systems needed for the NII.

(c) The present allocations for the 27.5-29.5 GHz band are not only standard worldwide but were designed for sharing on a co-primary basis by the terrestrial fixed and the fixed-satellite (Earth-to-space) services.

(d) The Advisory Committee should be asked to note that, while the Docket No. 92-297 proceeding has been underway, new technology requirements for the 27.5-29.5 GHz band have appeared and need to be considered, e.g., a new broad band terrestrial microwave having the capability for delivering fiber optic traffic at low cost to destinations without

access to fiber systems is a requirement for which technology is being developed.

(e) The 27.5-29.5 GHz and 38 GHz bands should be considered by the Advisory Committee as a package available to meet current and needs for terrestrial fixed microwave systems.

(f) The Advisory Committee should take into account export marketing potential that can be facilitated by the already existing worldwide spectrum allocations in the 27.5-29.5, 37.0-40.5, (for terrestrial fixed and fixed-satellite services) and 40.5-42.5 GHz bands (for Broadcasting and Broadcasting-Satellite).

(g) Since future television is certain to be digital in nature, digital modulation should decrease LMDS spectrum requirements, the Advisory Committee should be asked to examine the merit of allocating all of the 27.5-29.5 GHz band for video distribution services.

Whereupon the premises considered, the Commission is urged to take the foregoing into account as it advances this proceeding.

Respectfully submitted,

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Date March 21, 1994